What is claimed is:

1. A gas system for testing aircrew systems including a first system and a second system, said gas system comprising:

an input filter located in an inlet port, said input filter filtering an air to prevent foreign particles from entering said gas system

a first compressor compressing said air, said first compressor comprising at least one blower, a speed of said blower depending on a voltage applied to said blower;

a second compressor compressing said air, said second compressor producing a lower flow at a higher pressure than said first compressor;

a first flow sensor detecting a flow of the air compressed by said first compressor and a leaking of the aircrew systems;

a second flow sensor detecting the flow of the air compressed by said first compressor and the leaking of the aircrew systems;

a first flow valve mounted for controlling the flow of the air compressed by said first compressor to said first flow sensor;

a second flow valve mounted for controlling the flow of the air compressed by said first compressor to said second flow sensor;

a regulator regulating a pressure of said second system;

a first pressure sensor detecting a pressure of said first system;

a second pressure sensor detecting the pressure of said second system;

a first pressure valve for controlling the pressure of said first system;

a second pressure valve for controlling the pressure of said second system; and

a controller controlling an operation of said gas system.

2. The gas system of claim 1, with said inlet filter designed to accept a chemical filter.

3. The gas system of claim 1, wherein said first system is a mask, and said second system is a G-suit.

4. The gas system of claim 3, said first compressor comprising three regenerative blowers connected in series, said three regenerative blowers comprising a first blower, a second blower, and a third blower.

5. The gas system of claim 4, each of said three regenerative blowers having 21 inch H_2O of a maximum output pressure.

6. The gas system of claim 4, said first compressor compressing the air for testing said mask, said first compressor and said second compressor in order compressing the air for testing said G-suit.

7. The gas system of claim 6, said first compressor compressing the air until a G-suit pressure reaches a predetermined first pressure, said second compressor starting to compress the air when said G-suit pressure reaches said predetermined first pressure and finishing when said G-suit pressure reaches a predetermined second pressure.

8. The gas system of claim 7, wherein said predetermined first pressure is about 55 inch H_2O, and said predetermined second pressure is about 70 inch H_2O.

9. The gas system of claim 3, further comprised of:

said first flow sensor being able to measure the flow from 0 to 10,000 cubic centimeters per minute; and

said second flow sensor being able to measure the flow 0 to 300 cubic centimeters per minute.

10. The gas system of claim 3, further comprising:

a first digital indicator reading out data outputted from said first and second flow sensors.

11. The gas system of claim 10, further comprised of:

said first digital indicator converting the data to a digital signal presented as number scaled in engineering units.

12. The gas system of claim 10, further comprising:

a second digital indicator reading out data outputted from said first pressure sensor; and

a third digital indicator reading out data outputted from said second pressure sensor.

13. The gas system of claim 3, further comprising:

a first limit valve limiting the pressure of said first system.

14. The gas system of claim 3, further comprised of said first flow valve, said second

flow valve, said first pressure valve, said second pressure valve being solenoid valves.

15. The gas system of claim 12, further comprised of said first limit valve being a solenoid valve.

16. The gas system of claim 1, with said controller comprising a main printed circuit board (PCB).

17. The gas system of claim 16, with said controller further comprising a speed control printed circuit board (PCB), said speed control PCB controlling said first compressor by controlling a voltage applied to said second compressor.

18. The gas system of claim 16, with said main PCB using CMOS (complementary metal oxide semiconductor) logic.

19. An apparatus for testing aircrew systems, said apparatus comprising:

a first unit testing a mask;

a second unit testing a g-suit; and

a third unit testing communication systems,

said first unit, said second unit, and said third unit being integrated.

20. The apparatus of claim 19, further comprising a fourth unit testing a goggle.

21. The apparatus of claim 19, further comprised of:

said first unit and said second unit having a common gas system, said gas system comprising;

an input filter located in an inlet port, said input filter filtering an air to prevent foreign particles from entering said gas system

a first compressor compressing said air, said first compressor comprising at least one blower, a speed of said blower depending on a voltage applied to said blower;

a second compressor compressing said air, said second compressor producing a lower flow than said first compressor, said second compressor producing a higher pressure than said first compressor;

a first flow sensor detecting a flow of the compressed air and a leaking of the mask and the G-suit;

a second flow sensor detecting the flow of the compressed air and the leaking of the mask and the G-suit;

a first flow valve mounted for controlling the flow of the compressed air to said first flow sensor;

a second flow valve mounted for controlling the flow of the compressed air to said second flow sensor;

a regulator regulating a pressure of said G-suit;

a first pressure sensor detecting a pressure of said mask;

a second pressure sensor detecting the pressure of said G-suit;

a first pressure valve for controlling the pressure of said mask;

a second pressure valve for controlling the pressure of said G-suit; and

a controller controlling an operation of said gas system.

22. The apparatus of claim 21, with said inlet filter designed to accept a chemical filter.

23. The apparatus of claim 21, said first compressor comprising three regenerative blowers connected in series, said three regenerative blowers comprising a first blower, a second blower, and a third blower.

24. The apparatus of claim 21, said first compressor compressing the air for testing said mask, said first compressor compressing the air for said G-suit until a G-suit pressure reaches 55 inch H_2O, said second compressor starting to compress the air for said G-suit when said G-suit pressure is about 55 inch H_2O and finishing when said G-suit pressure is about 70 inch H_2O.

25 The apparatus of claim 24, further comprised of:

said first flow sensor being able to measure the flow from 0 to 10,000 cubic centimeters per minute; and

said second flow sensor being able to measure the flow 0 to 300 cubic centimeters per minute.

26. The apparatus of claim 21, further comprising:

a first digital indicator reading out data outputted from said first and second flow sensors.

27. The apparatus of claim 21, further comprising:

a second digital indicator reading out data outputted from said first pressure sensor; and

a third digital indicator reading out data outputted from said second pressure sensor.

28. The apparatus of claim 21, further comprising:

a first limit valve limiting a pressure of said first system.

29. The apparatus of claim 21, further comprised of said first flow valve, said second flow valve, said first pressure valve, said second pressure valve being solenoid valves.

30. The apparatus of claim 28, further comprised of said first limit valve being a solenoid valve.

31. The apparatus of claim 19, further comprising a control panel.

32. The apparatus of claim 21, with said controller being included in a main printed circuit board.

33. The apparatus of claim 32, further comprising a speed control unit, said speed control unit being included in a speed control printed circuit board, said speed control unit controlling said first compressor by controlling a voltage applied to said second compressor.

34. The apparatus of claim 32, with said controller including CMOS (complementary

metal oxide semiconductor) logic.

35. The apparatus of claim 21, further comprised of:

said third unit comprising an input accommodating a microphone, an input accommodating headset, and two inputs for carbon microphones.

36. The apparatus of claim 35, further comprising a built-in continuity tester.

37. The apparatus of claim 35, with said third unit further comprising an accommodation of a second headset and microphone accommodating a first user to communicate with a second user.

38. A method of operating a gas system for testing aircrew systems including a first system and a second system, said method comprising the steps of:

selecting one of a test mode for a normal breathing and a test mode for a pressure breathing for Gs breathing;

filtering an ambient air with a chemical filter;

compressing said air;

detecting a flow of said air; and

detecting a pressure of said first or second system.

39. The method of claim 38, wherein said first system comprises a mask, and said second system comprises a G-suit.

40. The method of claim 39, wherein, when said test mode for said normal breathing is selected, the step of compressing said air further comprises the step of turning on a first compressor.

41. The method of claim 39, wherein, when said test mode for said pressure breathing for Gs breathing is selected, the step of compressing said air further comprises the steps of:

turning on said first compressor;

turning off said first compressor and turning on said second compressor when said G-suit pressure reaches a first predetermined point; and

turning off said second compressor when said G-suit pressure is a second predetermined point.

42. The method of claim 41, wherein said predetermined first pressure is about 55 inch H_2O, and said predetermined second pressure is about 70 inch H_2O.

43. The method of claim 41, with said first compressor comprising a first blower, a second blower, and a third blower.

44. The method of claim 43, with said step of compressing said air further comprising the step of:

controlling said first compressor by adjusting a voltage applied to each of said first, second, and third blowers and by deciding how many said blowers are turned on.

45. A method of testing aircrew systems including a first system and a second system

with an apparatus, said method comprising the steps of:

taking a first test for a mask at a first pressure;

putting a G-suit on a user;

taking a second test for the mask at a second pressure with the G-suit not inflated;

inflating said G-suit; and

taking a third test for the mask at a third pressure with the G-suit inflated, said second pressure being higher than said first pressure and lower than said third pressure.

46. The method of claim 45, wherein said first pressure is from about 1 to about 10 inch H_2O, said second pressure is about 16 inch H_2O, and said third pressure is about 3 inch H_2O.

47. The method of claim 46, the second test further comprising the step of:

verifying a function of said mask; and

verifying that a vest starts to inflate.

48. The method of claim 47, further comprising the step of:

opening a first flow valve for directing all the flow to a first flow sensor, said first flow sensor sensing 0 to approximately 10,000 cubic centimeters per minute; and

checking a leak by detecting the flow with said first flow sensor.

49. The method of claim 47, further comprising the step of:

opening a second flow valve for directing all the flow to a second flow sensor, said second flow sensor sensing 0 to approximately 300 cubic centimeters per minute; and

checking a leak by detecting the flow with said second flow sensor.

50. The method of claim 48, the step of taking the third test further comprising the steps of:

increasing a pressure to about 32 inch H_2O; and

taking said second test at said third pressure with the G-suit inflated.

51. The method of claim 50, the step of inflating said G-suit further comprising the steps of:

turning on said first compressor at its maximum operating speed;

turning off said first compressor and turning on said second compressor when said G-suit pressure reaches a first predetermined point; and

turning off said second compressor when said G-suit pressure is a second predetermined point.

52. The method of claim 51, wherein said predetermined first pressure is about 55 inch H_2O, and said predetermined second pressure is about 70 inch H_2O.

53. The method of claim 52, further comprising the step of:

increasing said pressure to about 138.4 inch H_2O;

detecting a change in said pressure over an interval of time; and

calculating a leak rate.